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ABSTRACT

A study was conducted to investigate the decision-making and diagnostic processes of classroom teachers in reading diagnosis. Ten teachers interacted with simulated cases of reading difficulties in a laboratory setting and were observed and interviewed in their own classrooms about their instructional and diagnostic practices. Data analysis consisted of product measures (the outcomes of the interaction with a case), process measures (the manner in which a case was diagnosed), and classroom interviews (the diagnostic categories most frequently thought of by teachers). The major findings were that the teachers (1) showed little agreement with each other on their final stated diagnostic judgments for a case, (2) lacked comprehensive or systematic approaches to gathering and evaluating information about children's reading difficulties, and (3) used similar global diagnostic categories in laboratory situations and in the natural classroom environment. These findings suggest that there is a need for more thorough and effective training of teachers in diagnostic and remedial skills. (Author/AEA)

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THE DECISION-MAKING AND DIAGNOSTIC PROCESSES OF CLASSROOM TEACHERS

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Teachers' thoughts and decisions are the focus of studies currently under way at Michigan State University's Institute for Research on Teaching (IRT). The IRT was founded in April 1976 with a $3.6 million grant from the National Institute of Education. That grant has since been renewed, extending IRT's work through September 1981. Funding is also received from other agencies and foundations. The Institute has major projects investigating teacher decision-making, including studies of reading diagnosis and remediation, classroom management strategies, instruction in the areas of language arts, reading, and mathematics, teacher education, teacher planning, effects of external pressures on teachers' decisions, socio-cultural factors, and teachers' perceptions of student affect. Researchers from many different disciplines cooperate in IRT research. In addition, public school teachers work at IRT as half-time collaborators in research, helping to design and plan studies, collect data, and analyze results. The Institute publishes research reports, conference proceedings, occasional papers, and a free quarterly newsletter for practitioners. For more information or to be placed on the IRT mailing list please write to : The IRT Editor, 252 Erickson, MSU, East Lansing, Michigan 48824.

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THE DECISION-MAKING AND DIAGNOSTIC PROCESSES OF CLASSROOM TEACHERS[1]

Doron Gil[2]

The study reported here was an exploratory one designed to investigate the problem-solving behavior and decision-making processes of classroom teachers as they diagnosed students' reading difficulties in experimental and classroom situations. It is part of an extensive research program undertaken by IRT's Clinical Studies group (see Gil, Hoffmeyer, VanRoekel, & Weinshank, Note 1, for an overview of that research).

A review of the literature on reading diagnosis reveals that most educators consider the diagnosis of reading performance an essential and integral part of reading instruction and a basis of all efficient teaching (Gil, Vinsonhaler, & Sherman, Note 2). Moreover, because the reading process appears to be complicated and reading failure may be attributed to many compounding factors (Satz, 1977), some educators acknowledge the need for an interdisciplinary approach to diagnosis (and to research on reading in general) (Weintraub & Barr, 1976). This interdisciplinary approach, they argue, should focus attention on the individual child and his/her learning problems, and should be carried out by professionals from various fields (psychiatrists, psychologists and educators) who occupy various positions within the school system

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[1]This paper is a summary of Doron Gil's doctoral dissertation.

[2]Doron Gil is a researcher with IRT's Clinical Studies Project and a former IRT research intern.

(administrators, principals, reading consultants, classroom teachers) (Hollingsworth, 1970; Kress, 1965; Peters, 1977; Smith, Carter, & Dapper, Note 3).

The diagnostic process, some maintain, should start in the classroom, because "diagnosis is an essential aspect of teaching and a preliminary step to sound instruction" (Sheldon, 1968). Therefore, it is argued that teachers be "armed with the diagnostic and remedial techniques necessary to instruct students as effectively as possible" (Wilson, 1977, p. 1). Thus, the teacher is viewed not only as a reading-instructor, but as a diagnostician who constantly studies the reading strengths and weaknesses of students in order to improve instruction (Bond & Tinker, 1967).

Why do so many educators view the diagnostic act in reading instruction as so important? Furthermore, why do they place such heavy emphasis on classroom diagnosis (rather than leaving the diagnosis to a reading specialist)? Review of the literature suggests several reasons.

First, there is an increasing number of students with reading difficulties on the one hand, and a small number of reading specialists on the other, making it impossible to refer all children with difficulties to specialists. Therefore, it is important that classroom teachers develop the necessary diagnostic and remediation skills to detect and help children with reading difficulties (Gallant, 1970); specialists will be able to handle the number of students referred to them only if the classroom teacher assumes major responsibilities for diagnosis (Wilson, 1977).

Second, it is essential that reading difficulties be detected and corrected as early as possible (Sheldon, 1965), so that they will not

become more complex (Bond & Tinker, 1967, McCarthy, 1971; Rabinovitch, 1965). The basic assumption here is that "the earlier the problems are discovered, the more hope there is for conquering them" (Smith, 1969, p. 15).

Third, there is a notion that reading is such an important skill that every phase of poor readers' academic careers and their adjustments to their environment and peer-group are all directly or indirectly affected by defective reading ability (Sherman, 1968; Stevens, 1971); if this is so, diagnosis and remediation of reading difficulties can enhance a child's concept of him/herself.

Fourth, reading diagnosis should help teachers plan and modify instruction to meet the needs of individual students (Austin, 1968; Bond & Tinker, 1967; Dauzat, 1977; Dietrich, 1972; Farr, 1971; Karlsen, 1976; Olson & Dillner, 1976; Sawyer, 1968; Swalm, 1973).

The assumption underlying the arguments for classroom reading diagnosis (rather than clinical diagnosis) is that since classroom teachers have relatively long and extensive acquaintances with their students, they are in an optimal position to diagnose the students' reading performance through observations and informal tests (Wilson, 1977).

Although most researchers believe that classroom teachers are capable of diagnosing reading difficulties in their students, a review of the literature failed to provide a description of the diagnostic processes the teachers use. Moreover, the review revealed a lack of empirical evidence about the competence of classroom teachers in diagnosing reading problems.

This study intended to respond to these two deficiencies by exploring the decision-making and diagnostic processes of classroom teachers as they

diagnosed children's reading difficulties.

Procedures

Ten teachers were involved in the study, five from the Chicago area and five from the Lansing area. All had taken at least two courses in reading instruction at the university level.

All 10 teachers went through the same procedures. First, they interacted with two simulated cases of reading difficulties in a laboratory situation. These simulated cases, developed by Rebecca Barr of the University of Chicago, represented the behaviors of students with reading deficiencies. The cases were based on materials that would be available to a classroom teacher, and made use of the students' natural language patterns. In a second phase of the study, the teachers were observed in their own classrooms, and interviewed about their instructional, diagnostic, and remedial practices in reading.

Data Analysis

Data from laboratory interactions consisted of verbatim comments made by the teachers as they gathered and evaluated information about the two simulated cases, and of their final stated diagnostic judgments. These data were analyzed by means of product and process measures. The product measures consisted of (1) diagnostic agreement scores, (2) diagnostic commonality scores, (3) cue agreement scores, and (4) cue commonality scores. The process measures included (1) length of interaction, (2) number of final diagnoses, (3) number of cues collected, and (4) relationships between cues and the teachers' verbatim comments.

Classroom interviews were analyzed in terms of (1) diagnostic categories mentioned in the classroom, (2) remedial techniques offered, and (3) teachers' responses to various questions in the interview. Comparisons

were also made between teachers' classroom diagnoses and their laboratory diagnoses.

Results

The major finding suggested by the product measures was that the teachers differed from one another on their final stated diagnoses for the simulated cases of reading difficulties. The process measures yielded two major findings: (1) that the teachers apparently lacked comprehensive and systematic strategies for gathering and evaluating information about the cases in order to reach diagnostic judgments, and (2) that the teachers differed markedly from each other on length of interaction with a case, number of cues collected, number of final stated diagnoses, and number of comments made about the case.

Analysis of classroom interviews revealed that the teachers mentioned similar global diagnostic categories in both the laboratory situations and the natural classroom environments. These categories tended to be very general.

Conclusions

Despite the small number of teachers participating, the study provides convincing evidence for the following three conclusions.

(1) Contrary to what the professional literature on reading diagnosis implies, classroom teachers do not seem qualified to diagnose and remediate cases of reading difficulties. The results of this study suggest that teachers are ill-equipped to carry out these functions. This apparent deficiency may be the result of two interrelated causes: insufficient training of teachers in reading diagnosis and remediation, and absence of a comprehensive model of reading and diagnosis.

Several examples support this conclusion. As one teacher interacted with a simulated case, she said: "The problem is that (the child) can't

have phonetic analysis of words." Later, when this teacher stated her final diagnoses, she focused entirely on emotional problems (she also cited emotional problems during classroom interviews). It seems that this teacher operates from a psychological model, which is only remotely related to the reading act, if at all.

Another teacher, after looking at only a few items of information about a case, said: "From her word-meaning knowledge,I assumed very fast that comprehension was one of her better areas." In her subsequent work on this case, this teacher looked at no items of information about comprehension (whereas seven other teachers had something to say about the comprehension level of this case).

A third teacher, interacting with another simulated case, made two final diagnoses that contradicted each other: "the child reads hesitantly," and "the child reads very well."

These examples suggest that these teachers do not operate from comprehensive models of reading and diagnosis.

The notion that teachers are ill-equipped to conduct diagnoses is also consistent with results from studies of reading specialists and learning disabilities personnel conducted by the IRT's Clinical Studies group. Tables 1 and 2 show the diagnostic categories most frequently mentioned by eight senior reading clinicians who interacted with simulated cases in the group's 1977 observational study (Vinsonhaler, Note 4), and those categories most frequently mentioned by the teachers in the present study.

A comparison of Tables 1 and 2 demonstrates that, in general, results for the proportional agreement in the two studies are quite similar. In both instances, most of the diagnostic categories listed were mentioned for a given case by only about 30% of the clinicians.

There were, however, more diagnostic categories cited by at least 50% of the clinicians in the 1977 study than in the present study, possibly because the clinicians' training backgrounds were more similar to each other than the 10 teachers' were.

The consistency of results between the two studies is further illustrated by a comparison of the diagnostic agreement and commonality scores for each. Table 3 summarizes these comparisons.

As Table 3 shows, diagnostic agreement and commonality scores were markedly similar for the classroom teachers and the reading clinicians. This further suggests that the findings of the present study are generalizable.

(2) Overall, teachers seem to lack the information-processing strategies that are necessary for gathering and evaluating information about students' reading difficulties. Their diagnoses in both the laboratory situations and the natural classroom environment tend to be global, non-specific, and incomplete. They are confined to a set of general observations that do not necessarily form a comprehensive picture of a child's reading performance. The teachers are observers of student behaviors; at best, they can say what children cannot do, rather than offer complete and specific diagnoses.

That this is so should come as no surprise, for several reasons. For one thing, teacher education programs rarely provide teachers with thorough preparation in decision-making and diagnostic skills. Moreover, the models of reading and learning that teachers are given in training programs may be inadequate and not comprehensive. Finally, most programs emphasize method courses and the acquaintance of prospective teachers with a variety of subject areas, rather than more specialization.

Table 1

Most Frequently Mentioned Diagnostic Categories
for 1977 Observational Study
(8 clinicians, 4 cases).*

Diagnostic categories	Case A	Case B	Case C	Case D
At least average reading potential	.67	.33	.50	.67
Adequate verbal skills	.33	.50	.50	--
Poor oral reading	.50	.67	.33	--
Problems with vowels	.50	.33	.33	--
Sight words: Low	.33	--	.83	--
Phonics: Weak	.33	--	--	.67
Auditory acuity: Problem	--	.50	--	.67
Consonant blends: Not a problem	.33	--	.33	--
Good use of context	.33	--	.33	--
Writing: Problem	.33	.33	--	--
Spelling: Problem	--	.33	--	.33
Normal interest and behavior	--	--	.33	.33
Attitude toward reading: Poor	.50	--	--	--
No problem isolated letter sound skills	.50	--	--	--
Speech: Problem	--	.50	--	--
Problem with syllables	--	.50	--	--
Handwriting: Problem	--	.50	--	--
Problem with visual memory	--	--	.50	--
Health problems in school	--	--	--	.50
Poor word analysis skills	--	--	--	.50
Auditory discrimination: Problem	--	--	--	.50

* -- denotes 0.00; all numbers are proportions.

Table 2

Most Frequently Mentioned Diagnostic Categories
for Two Cases and 10 Teachers.*

Selected Diagnostic Categories	Case 7 (54 diagnoses)	Case 8 (62 diagnoses)
Endings: Ignores	.50	--
Sight words: Weak	--	.50
Sight vocabulary: Good	.40	--
Vocabulary concepts: Adequate	.30	.30
Comprehension: Poor	.30	--
Oral reading: Skips words	--	.30
Oral reading: Does not pay attention to punctuation	--	.30
Phonic skills: Weak	--	.30
Word attack skills: Lacks	--	.30
Print translation: Problem area	--	.30
Oral reading comprehension: Good	--	.20
Understanding: Good when listening	--	.20
Literal comprehension: Adequate	--	.20
Beginning sounds: Knows	--	.20
Initial consonants: Strong	--	.20
Syllabication skills: Poor	--	.20
Unfamiliar words: No attempt to sound	--	.20
Context to help with the unknown word: Does not use	--	.20
Language: No language problem	--	.20
Comprehension: Adequate	.20	--
Vocabulary: Weak	.20	--
Punctuation: Lacks	.20	--
Reversals: Problem area	.20	--
Mispronunciation errors: Did not correct	.20	--
Vowels: Need work	.20	--
Word anlaysis: Weak	.20	--

* -- denotes 0.00; all numbers are proportions.

Table 3

Diagnostic and Commonality Scores for the Classroom Teachers Study and the 1977 Study.

Statistics	Classroom teachers study (10 classroom teachers)				1977 Study (8 reading clinicians)	
	Case 7		Case 8		(24 data points)	
	score	standard deviation	score	standard deviation	score	standard deviation
Diagnostic agreement	-.04	.13	-.03	.11	-.07	.17
Diagnostic commonality	.45	.29	.45	.23	.55	.18

(3) Investigations conducted in laboratory settings, carefully planned and monitored, seem to be a valid and appropriate means of studying the clinical problem-solving behavior of classroom teachers.

The fact that the performance of the individual teachers in this study was consistent across two simulated cases suggests that the cases elicited at least some of the teachers' habitual problem-solving behavior. That the general diagnostic categories mentioned by teachers in the laboratory settings were also mentioned during classroom interviews suggests that the teachers operated from similar models of reading in both situations. Furthermore, the teachers' own comments about the laboratory interactions support the claim that the laboratory conditions did, indeed, resemble the natural classroom situation with regard to the diagnosis of individual readers.

Recommendations

There is a clear need for the classroom teacher to be a reading diagnostician. However, training in the diagnosis of reading difficulties has been reserved mainly for graduate-level courses; most undergraduate teacher education programs do not provide sufficient instruction in this area. The adequacy of this kind of teacher education curriculum may therefore be questioned. Teachers need to be trained more thoroughly in diagnostic and remedial skills in reading. Such training should be based on a model of reading and diagnosis, and focus on the diagnostic strategies involved in gathering and evaluating data about students with reading difficulties.

Training of teachers in diagnosis and remedial skills can be conducted in laboratory situations, using simulated cases of reading difficulties. Teachers should be given much practice interacting with simulated cases, where it is possible for them to receive immediate feedback on their performance.

It is also necessary that additional studies be carried out to investigate further the clinical problem-solving behavior of classroom teachers in reading diagnosis. Instruments should be developed to relate, more precisely, teachers' diagnostic performances in laboratory situations to their performances in the natural classroom environment.

Research should also be conducted to investigate the impact of laboratory training with simulated cases on teachers' performances in the natural classroom environment.

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